Claims

1. Clamping tool comprising a first element (18) and a second element (20) capable of relative displacement under the action of a drive means, this device comprising a screw (10) with a given pitch (P1) capable of being driven in rotation about an axis (XX) in one direction or in the opposite direction under the action of a motor M; a nut (12) cooperating with the screw (10) and capable of being driven in translation in the direction of the axis (XX) of the screw, the nut being rigid in translation with the first element (18); first guide means (34L) defining a linear guide parallel to the axis (XX) of the screw in order to lock the nut (12) in rotation in a first phase of displacement (D1) of the nut; and second guide means (34H) defining a helicoidal guide which extends along the axis (XX) of the screw (12) and which has an inverted pitch (P2) relative to the pitch (P1) of the screw in order to allow rotation of the nut (12) in the same direction of rotation as the screw (10) in a second phase of displacement (D2) of the nut, characterised in that it comprises a compensation system (46) interposed between the first element (18) and a mobile support (14) rigid with the nut (12) in order to reinitialise the position of this first element (18) relative to the second element (20), so that the first and second displacement phases generated by the first and second guide means (34L, 34H) remain synchronous with the phases necessary to optimisation of the displacement of the first element.

2. Clamping tool according to claim 1, characterised in that the compensation system (46) comprises the mobile support (14) in the form of a tubular element rigid with the nut (12) and equipped with a male thread (48), as well as a hub (50) with a female thread and cooperating with the male thread of the mobile support (14), this hub (50) supporting the first element (18) via a thrust ball bearing (54).

3. Clamping tool according to claim 2, characterised in that it comprises positioning means (66; 76; 80) for selectively placing the hub (50) in one of the three following positions:

- normal position ("position A") in which the hub (50) is rigid in translation and in rotation with the mobile support (14);
- reinitialising position ("position B") in which the hub (50) is rigid in translation and rotation with the first element (18); and
- intermediate position ("position C") in which the hub (50) is free except for its connection to the thrust ball bearing (54) and its threaded connection to the mobile support (14).

4. Clamping tool according to claim 3, characterised in that the positioning means comprise a nut plate (66) rigid in rotation with the hub (50), freely displaceable in axial translation relative to the hub (50) and with a female thread to cooperate with the male thread (48) of the mobile support (14); a spring (74) contrived to move the nut plate away from one end (70) of the hub; solenoid plungers (78) rigid with a mobile disc (76) and traversing a plate (16) forming part of the first element (18); and a winding (80) carried by the plate and contrived, when supplied with electricity, to displace the nut plate (66) towards the end (70) of the hub (50) and the mobile disc (76) rigid with the solenoid plungers (78) towards the nut plate (66), counter to a spring-back element (82) acting on the solenoid plungers (78).

5. Clamping tool according to claims 3 and 4, taken in combination, characterised in that:
   - in the normal position ("position A"), the winding (80) is not supplied with electricity, so that the nut plate (66) is apart from the end (70) of the hub (50), thus effecting locking of the hub on the mobile support (14)
   - in the reinitialising position ("position B"), the winding (80) is supplied with electricity, so that the nut plate (66) comes closer into contact with the end (70) of the hub (50) and the mobile disc (76) comes closer into contact with the nut plate (66), thus effecting locking of the hub (50) on the plate (16) and, consequently, on the first element (18); and

- in the intermediate position ("position C), the winding (80) is supplied with electricity, so that the nut plate (66) is brought closer into contact with the end (70) of the hub (50), whereas the mobile disc (76) is brought closer to the nut plate (66) without coming into contact therewith due to the fact that the solenoid plungers (78) are held in an intermediate position, the hub (50) being free except for its connection to the thrust ball bearing and its threaded connection to the mobile support (14).

6. Clamping tool according to one of claims 1 to 5, characterised in that it comprises a fixed support (22) which carries the motor (M) and the second element (20), known as the "fixed element".

7. Clamping tool according to claim 6, characterised in that it comprises a column (24) fixed to the fixed support (22) and extending in a direction parallel to the axis of rotation (XX) of the screw in order to effect guiding in translation of the mobile support (14) which carries the first element (18), known as the "mobile element".

8. Clamping tool according to one of claims 1 to 7, characterised in that it comprises a hollow cylindrical support (30) which has a cylindrical wall (32) centred on the axis of rotation (XX) of the screw (10), and in which are cut two opposite slides (34) each defining the first and second guide means, and in which respectively two tracking elements (28) are displaced carried by the nut (12).

9. Clamping tool according to one of claims 1 to 8, characterised in that it takes the form of soldering pliers, the first element (18) and the second element (20) forming an electrode and a counter-electrode respectively.